

L Number	Hits	Search Text	DB	Time stamp
-	4	866665.apn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 14:10
-	5	((("5252142") or ("5387542")).PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 11:47
-	0	((("5252142") or ("5387542")).PN.) and oxygen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 11:17
-	619	136/255,258,261.ccls. and oxygen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:02
-	188	(136/255,258,261.ccls. and oxygen) and (plasma near ((chemical adj vapor adj deposition) or cvd))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:03
-	87	((136/255,258,261.ccls. and oxygen) and (plasma near ((chemical adj vapor adj deposition) or cvd))) and ppm	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:05
-	12	((((136/255,258,261.ccls. and oxygen) and (plasma near ((chemical adj vapor adj deposition) or cvd))) and ppm) and (oxygen near3 ppm)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:14
-	2	(((((136/255,258,261.ccls. and oxygen) and (plasma near ((chemical adj vapor adj deposition) or cvd))) and ppm) and (oxygen near3 ppm)) and (high adj frequency)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:15
-	23	136/255,258,261.ccls. and (high adj frequency adj plasma adj (CVD or (chemical adj vapor adj deposition)))	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 12:16
-	0	136/255,258,261.ccls. and fluoride	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 14:15
-	2	silicon adj fluoride	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 14:15
-	8	(US-5599403-\$ or US-5556794-\$ or US-5456762-\$ or US-5439533-\$ or US-6287943-\$ or US-6184457-\$ or US-5571749-\$).did. or (US-20020033191-\$).did.	USPAT; US-PGPUB	2002/04/26 14:16
-	25	136/249,255,258,261.ccls. and (silicon adj fluoride)	USPAT	2002/04/26 14:58

-	0	(136/249,255,258,261.ccls. and (silicon adj fluoride)) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/26 14:58
-	8	(136/249,255,258,261.ccls. and (silicon adj fluoride)) and cvd	USPAT	2002/04/26 15:02
-	26	136/\$.ccls. and (silicon adj fluoride)	USPAT	2002/04/26 15:02
-	1	(136/\$.ccls. and (silicon adj fluoride)) not	USPAT	2002/04/26 15:05
-	158	(136/249,255,258,261.ccls. and (silicon adj fluoride)) 136/249,255,258,261.ccls. and cvd and (oxygen near3 (gas or atmosphere))	USPAT	2002/04/26 15:07
-	16	136/249,255,258,261.ccls. and cvd and (oxygen near2 concentration same (gas or atmosphere))	USPAT	2002/04/26 15:14
-	25	136/249,255,258,261.ccls. and cvd and (oxygen near2 concentration same layer)	USPAT	2002/04/26 15:58
-	0	136/249,255,258,261.ccls. and (crystal adj fraction)	USPAT	2002/04/26 15:59
-	1	136/\$.ccls. and (crystal adj fraction)	USPAT	2002/04/26 16:00
-	1	136/\$.ccls. and (crystal adj fraction)	US-PGPUB	2002/04/26 15:59
-	298	136/\$.ccls. and (raman scattering)	USPAT	2002/04/26 16:00
-	155	136/249,255,258,261.ccls. and (raman scattering)	USPAT	2002/04/26 16:17
-	110	(136/249,255,258,261.ccls. and (raman scattering)) and crystalline	USPAT	2002/04/26 16:01
-	18	136/249,255,258,261.ccls. and (raman adj scattering)	USPAT	2002/04/26 16:30
-	9	136/249,255,258,261.ccls. and ((crystal or crystalline) near volume)	USPAT	2002/04/26 16:30
-	35	136/249,255,258,261.ccls. and (oxygen with ppm)	USPAT	2002/04/26 16:50
-	142	136/249,255,258,261.ccls. and cvd and plasma and fluorine	USPAT	2002/04/26 16:51
-	19	(136/249,255,258,261.ccls. and cvd and plasma and fluorine) and fluorine near3 silicon	USPAT	2002/04/26 16:55
-	48	423/341,348.ccls. and (silicon near2 fluoride)	USPAT	2002/04/26 16:56
-	0	(423/341,348.ccls. and (silicon near2 fluoride)) and cvd	USPAT	2002/04/26 16:56
-	9	(423/341,348.ccls. and (silicon near2 fluoride)) and film	USPAT	2002/04/26 16:57
-	1	427/588.ccls. and (silicon near2 fluoride)	USPAT	2002/04/26 16:58
-	36	427/588.ccls. and silicon near2 film	USPAT	2002/04/26 16:59
-	20	(427/588.ccls. and silicon near2 film) and oxygen	USPAT	2002/04/26 17:01
-	17	((427/588.ccls. and silicon near2 film) and oxygen) and plasma and cvd	USPAT	2002/04/26 17:01
-	4	((((427/588.ccls. and silicon near2 film) and oxygen) and plasma and cvd) and ppm	USPAT	2002/04/26 17:02

-	2	((427/588.ccls. and silicon near2 film) and oxygen) and plasma and cvd) and (concentration near3 oxygen)	USPAT	2002/04/26 17:03
-	20	136/\$.ccls. and kondo.in.	USPAT	2002/04/29 10:40
-	2	136/\$.ccls. and (crystal adj fraction)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 09:57
-	4	865549.apn.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 10:37
-	214	136/\$.ccls. and canon.as. and crystal	USPAT	2002/04/29 10:41
-	0	136/\$.ccls. and canon.as. and crystal and (high adj frequency adj introducing adj electrode)	USPAT	2002/04/29 10:41
-	6	136/\$.ccls. and canon.as. and crystal and (supplied adj power)	USPAT	2002/04/29 10:43
-	10	136/261.ccls. and canon.as.	USPAT	2002/04/29 10:43
-	1	5571749.pn. and oxygen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 12:53
-	7	438/62,97,485,486,488,490,487.ccls. and (thin adj film) and (silicon adj fluoride) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 15:49
-	40	438/62,97,485,486,488,490,487.ccls. and (thin adj film) and (oxygen near2 concentration) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 15:55
-	9	438/62,97,485,486,488,490,487.ccls. and (thin adj film) and ((oxygen near2 concentration) same ppm) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 15:57
-	0	252/62.3.ccls. and (thin adj film) and ((oxygen near2 concentration) same ppm) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 15:58
-	1	252/\$.ccls. and (thin adj film) and ((oxygen near2 concentration) same ppm) and cvd	USPAT; US-PGPUB; EPO; JPO; DERWENT	2002/04/29 15:58

25.3

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Text Item
Number**Pure Gases for Semiconductors**

Silicon Tetrafluoride

Gas Data

FORMULA: SiF₄
MOLECULAR WEIGHT: 104.09
SPECIFIC VOLUME: 0.231 m³/kg
SPECIFIC VOLUME: 3.70 ft³/lb

Shipping Data

CAS NUMBER: 7783-61-1
DOT PROPER NAME: Silicon Tetrafluoride
TC PROPER NAME: Silicon Tetrafluoride
I.D. NUMBER: UN 1859
HAZARD CLASS: 2.3 (Toxic Gas)
HAZARD CLASS (Canada): 42
LABEL: Toxic Gas

Cylinder Specifications

ULTRA-LINE® Cylinder Size	Valve Outlet CGA No.	Pressure psig @ 70F	Pressure kPa @ 21.1C	Approximate Ship Weights	
				lb	kg
QC	330/642	1,000	6,895	182	82.6
UC	330/642	1,000	6,895	46	20.9
JC	330/642	1,000	6,895	24	10.9
SA	330/642	1,000	6,895	14.1	6.4

Gas Grade Purity Specifications

Gas Grade Purity Specifications	Product Code	Cylinder Size	Content		Equipment Recommendations	Model No.
			US	Metric		
Silicon Tetrafluoride	<u>G2658923</u>	QF	50 lb	22.73 kg	ULTRA-LINE Single-Stage Reg.	<u>9370 Series</u>
ULSI	<u>G2658924</u>	QF	50 lb	22.73 kg	Manual Control	<u>55A-330</u>
4N Purity	<u>G2658925D</u>	UF	7.5 lb	3.41 kg	Personal Monitor	<u>IQ250</u>
Guaranteed Specifications	<u>G2658926</u>	UF	7.5 lb	3.41 kg		
Nitrogen 3.0 ppm	<u>G2658927D</u>	SA	0.11 lb	0.05 kg		
Oxygen + Argon 1.0 ppm	<u>G2658928</u>	SA	0.11 lb	0.05 kg		
Carbon Monoxide 0.5 ppm						
Carbon Dioxide 1.0 ppm						
Methane 10.0 ppm						
Hydrogen Fluoride 50 ppm						
Arsenic 0.5 ppm						
Boron 0.5 ppm						

Phosphorous 0.5 ppm

A lot analysis will be provided on request. Please inquire for specific cylinder analysis.

Gas Grade Purity Specifications

Gas Grade Purity Specifications	Product Code	Cylinder Size	Content		Equipment Recommendations	Model No.
			US	Metric		
Silicon Tetrafluoride	G1696514	QF	50 lb	22.70 kg	ULTRA-LINE Single-Stage Reg.	9370 Series
Semiconductor	G1696562	UF	7.5 lb	3.40 kg	Manual Control	55A-330
4.0 Purity	G1696586	SA	50 gm	50 gm	Personal Monitor	IQ250
Guaranteed Specifications						
Nitrogen 80.0 ppmv						
Oxygen 20.0 ppmv						

A lot analysis will be provided on request. Please inquire for specific cylinder analysis.

[See Safe Delivery Source \(SDS\) for Ion Implant Gases.](#)

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